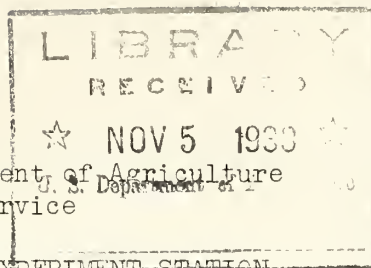


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GROWTH OF PRUNED WHITE PINE

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Indications that live pruning, which has little or no effect on the height growth of white pines, will reduce diameter growth when too large a percentage of the living crown is removed, have resulted from a study now being made by the Appalachian Forest Experiment Station on the Toccoa Experimental Forest, Union County, Georgia.

White pines ranging from 16 - 20 years of age, from 2 - 7 inches in diameter at breast height, and from 15 - 48 feet high were used in the experiment, 90 trees being treated in each of the four ways listed below:

1. Check trees - no pruning
2. Light pruning - 6 to 15 percent of the living branch whorls removed
3. Moderate pruning - 16 to 25 percent of the living whorls removed
4. Heavy pruning - 26 to 35 percent of the living whorls removed

Prior to the growing season of 1936 and just before pruning was done, the diameter (at breast height) and total height of each tree were recorded. These measurements were repeated two growing seasons later.

The average growth, during that period, of the trees treated in each of the four ways is given below. The figures have been adjusted to allow for differences in diameter, height and crown ratio^{1/} between the trees at the beginning of the experiment.

^{1/} The ratio of the crown length to the total height of a tree.

Average growth of 90 white pines
during two growing seasons

Kind of pruning	Diameter (inches)	Height (feet)
None (check)	0.34	3.2
Light	0.34	3.3
Moderate	0.32	3.2
Heavy	0.29	3.1

The diameter growth of the heavily pruned trees is significantly less^{2/} than the growth of trees treated in any other way, but the difference between the diameter growths of check trees and those pruned moderately is not significant. Check and lightly pruned trees both grew 17 percent faster, and moderately pruned trees, 11 percent faster than heavily pruned trees.

There are no significant differences between the height growths of the trees pruned in the four different ways.

These results are preliminary. If the effects of pruning are cumulative, future measurements may show that moderate pruning also has a detrimental effect. Consequently, current results indicate that conservative specifications for pruning second-growth white pine in the southern Appalachians should permit the removal of not more than 15 or 20 percent of the total number of living whorls. Such specifications may be expected to accomplish the major objectives of pruning without reducing growth.

^{2/} "Significantly less" is used in the statistical sense. The odds that the difference between the growth of heavily pruned trees and other trees is due to chance are less than 1 in 100.

